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AMSAT NEWS SERVICE
ANS-303

ANS is a free, weekly, news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

Please send any amateur satellite news or reports to:

ans-editor@amsat.org

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SB SAT @ AMSAT $ANS-303.01
AMSAT Symposium Next Weekend

AMSAT News Service Bulletin 303.01
>From AMSAT HQ SILVER SPRING, MD.
October 30, 2011
To All RADIO AMATEURS
BID: $ANS-303.01

This year's Symposium marks the 50th anniversary of the launch of the first amateur radio satellite into space. The Symposium is being held in San Jose, CA on November 4 thru November 6 which is the home of Project OSCAR, the organization that built amateur radio's first satellite. As part of our commemoration, the ARRL is bringing an OSCAR 1 prototype which has been refurbished to help highlight this significant milestone. Our banquet speaker, Lance Ginner, K6GSJ was a member of the team that built OSCAR 1; he subsequently was involved with a number of follow-on amateur radio satellite projects. Lance's presentation promises to be a fascinating look at the early days of amateur radio in space as well as perhaps some lessons learned.

The Symposium is an excellent opportunity to learn about the success of ARISSat-1 as well as AMSAT's latest project, Fox and the steps that we're taking to continue to keep amateur radio in space. There are some excellent presentations scheduled that will cover the gamut from satellite engineering to satellite operations to education outreach.
This year's "Proceedings of the AMSAT-NA Space Symposium and Annual Meeting", which is provided to every Symposium attendee contains 21 papers and is over 250 pages in length. While not

all papers will be presented, there are also several presentations scheduled to be presented where the material was not finished in time for publication.

Along with the outstanding materials presented, Symposium offers a great opportunity to meet the AMSAT leadership (the Board of Directors members as well as Senior Officers), other satellite enthusiasts, and interact with our volunteers who are involved with our engineering projects. Symposium is both a presentation/educational opportunity as well as a social event.

If you haven't yet registered for this year's Symposium, please consider joining us. Details on the Symposium and registering can be found at:
http://www.amsat.org/amsat-new/symposium/2011/index.php
The last time that AMSAT held a Symposium in California was in 2006; this may be the best chance for AMSAT members and others living on the West Coast to participate in a Symposium and have direct interaction with the AMSAT leadership for some time.   Hopefully, those of you living in the Bay Area will take full advantage of this opportunity. Alan Bowker, WA6DNR and his team have done a great job preparing for an outstanding weekend in San Jose.

See ya in San Jose!

Barry Baines, WD4ASW
President-AMSAT

[ANS thanks Barry, WD4ASW, for the above information]

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SB SAT @ AMSAT $ANS-303.02
Symposium Registration & Banquet Reservations Deadline

AMSAT News Service Bulletin 303.02
>From AMSAT HQ SILVER SPRING, MD.
October 30, 2011
To All RADIO AMATEURS
BID: $ANS-303.02

This is a reminder that on Monday October 31, 2011, the on-line registration for the 2011 AMSAT Space Symposium and Annual Meeting will close. Also, a count is needed for the Annual Banquet. If you are planning to attend the meeting and/or attend the Banquet, please register as soon as possible. After Monday, you will need to register at the hotel.

 [ANS thanks AMSAT HQ for the above information]

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SB SAT @ AMSAT $ANS-303.03
AMSAT Awards Announcement

AMSAT News Service Bulletin 303.03
>From AMSAT HQ SILVER SPRING, MD.
October 30, 2011
To All RADIO AMATEURS

BID: $ANS-303.03

AMSAT Director of Contests and Awards, Bruce Paige, KK5DO says that congratulations are in order for the latest AMSAT Awards recipients:

The following have entered into the Satellite Communicators Club for making their first satellite QSO:

Stephen Licht, WF2S
Jay Hitchcock, KI6WZU
Costantino Montella, IK8YSS
Jackson Wilson, KF5LOQ

The following have earned the AMSAT Communications Achievement Award:

Clayton Coleman, W5PFG #542
Csaba-Zoltan Kertesz, YO6PIB #543
Yanko Yankov, NX9G #544
Jackson Wilson, KF5LOQ #545

The following have earned the South Africa Satellite Communications Achievement Award:

Clayton Coleman, W5PFG #US171
Csaba-Zoltan Kertesz, YO6PIB #US172
Yanko Yankov, NX9G #US173
Jackson Wilson, KF5LOQ #US174

The following have earned their Robert W. Barbee, Jr. W4AMI Award:

Branko Martincic, 9A3ST #74

The following have earned their Robert W. Barbee, Jr. W4AMI 5000 Award:

Gale McDaniel, KB0RZB #28

To see all the awards visit http://www.amsat.org.

[ANS thanks Bruce Paige, KK5DO for the above information]

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SB SAT @ AMSAT $ANS-303.04
Speaker and Presentation List Added to AMSAT Symposium Schedule

AMSAT News Service Bulletin 303.04
>From AMSAT HQ SILVER SPRING, MD.
October 30, 2011
To All RADIO AMATEURS
BID: $ANS-303.04

AMSAT's 2011 Space Symposium is quickly approaching. It will be held on Friday, November 4th through Sunday, November 6th in San Jose, CA.

This year commemorates the 50th anniversary of the launch of OSCAR 1. Many events are planned to celebrate our 50 years of keeping amateur radio in space. The original OSCAR 1 prototype has been refurbished by the ARRL Lab. It will be on display and

transmitting. Our Banquet Speaker is Lance Ginner, K6GSJ who was
on the OSCAR 1 development team.

The 2011 Symposium Schedule has been posted and includes:

Thursday, November 3
0800 - 1200 AMSAT Board of Directors Meeting open to all AMSAT members
1300 - 1800 AMSAT Board of Directors Meeting open to all AMSAT members
1930 - 2200 AMSAT Board of Directors Meeting open to all AMSAT members

Friday, November 4
Symposium Registration Desk Open
0900 - 1200 AMSAT Board of Directors Meeting (Friday morning)
1:00 PM Introduction and Opening of presentations:
+ Bryan Klofas, KF6ZEO "Frequency Allocation for Government-funded
  CubeSats:NSF Paves the Way"
+ Bob Davis, KF4KSS "Orbital Elements and Magnetic Tumble in Excel"
+ Nick Pugh, K5QXJ "How to Light the Candle"
+ Michael Safyan, KJ6MVL "AMSAT Ames PhoneSat"
+ David Palmer, KB5WIA "A Satellite-Portable Backpacking Trip to
  Rare California Grid Square CM79
+ Hans van de Groenendaal, ZS6AKV "SA AMSAT CuveSat Project
  'KLETSKous'"
+ Hans van de Groenendaal, ZS6AKV "Turning University CubeSats
  into amateur radio satellites"
+ Jan King, VK4GEY/W3GEY "Australis-OSCAR-5

Saturday, November 5
0730 Symposium Registration Desk Open
8:00 AM Introduction and Opening of presentations:
+ Lou McFadin, W5DID "Fabrication, Integration and Testing of
  ARISSat-1"
+ Gould Smith, WA4SXM "ARISSat-1 in Flight"
+ Douglas Quagliana, KA2UPW/5 "Decoding Satellite Telemetry form
  ARISSat-1"
+ Steven Bible, N7HPR "ARISSat-1 Operational Survey"
+ Gould Smith, WA4SXM "ARISSat-1 Post Mortem"
+ Tony Monteiro, AA2TX "Space Radiation and Fox Program"
+ Barry Baines, WD4ASW "The Importance of Educational Outreach
  for AMSAT"
+ Tony Monteiro, AA2TX "AMSAT Fox-1 Systems Overview"
+ Bob Davis, KF4KSS "Fox 1 Thermal Design"
+ Bob Davis, KF4KSS "Fox 1 Mechanical Design"
+ Alexander J Harvilchuck, N3NP "2010-2011 AMSAT NextGen Program
  Satellite Report"
+ Sawson Taheri, KG6NUB "OSCAR Zero from a Satellite Operator's
  Perspective"
+ AMSAT Annual Meeting

1700 - 1800 Break
1800 - 1900 Attitude Adjustment with Cash Bar
1900 - 2100 Banquet and Keynote Speaker and Door Prize Drawing

Sunday, November 6
0730 Area Coordinators Field Ops Breakfast
0900 IARU Meeting
1015 Meet for Sunday Tour Tech Museum of Innovation in San Jose.

Our annual gathering will also feature:

+ Space Symposium with Amateur Satellite Presentations
+ Operating Techniques, News, & Plans from the Amateur Satellite World
+ Board of Directors Meeting open to AMSAT members (Nov. 3-4)
+ Meet Board Members and Officers

+ Annual General Membership Meeting
+ Annual Banquet-Keynote Speaker and Door Prizes

The 2011 Symposium hotel and registration web pages are now available on the AMSAT web site. You may register for the Symposium and Annual Banquet at the AMSAT Store:
http://www.amsat-na.com/store/SymposiumReg.php

Visit the Symposium and Annual General Meeting web page for details and the latest information:
http://www.amsat.org/amsat-new/symposium/2011/index.php

[ANS thanks the 2011 Symposium Committee for the above information]

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SB SAT @ AMSAT $ANS-303.05
PW-Sat to Launch in January

AMSAT News Service Bulletin 303.05
>From AMSAT HQ SILVER SPRING, MD.
October 30, 2011
To All RADIO AMATEURS
BID: $ANS-303.05

This week AMSAT-UK web site carried the announcement that PW-Sat, a 1U CubeSat to be launched on the first VEGA flight in January,will carry a 145 to 435 MHz Amateur Radio transponder.

The single channel transponder will operate in a similar way to AO-16.

The uplink on 145.900 MHz will be FM and the downlink on 435.020MHz will use the BPSK telemetry beacon transmitter to produce Double Sideband (DSB) that can be received on an SSB radio.

PW-Sat will be launched into a 300 by 1450km 69.5 degree orbit and may be expected to have a lifetime of about 2 years before re-entry. It was built by students of Warsaw University of Technology in cooperation with the Space Research Centre and will be Poland's first satellite.

The development and construction of this satellite, students worked with two research groups - Astronautical Students (Faculty MEiL)and Space Engineering Student (Faculty EITI). Tutor from the beginning of the project was prof. Assoc. inz. Piotr Wolanski, MEiL department.

The main objective of the project is education of students in the preparation, construction and use of artificial satellites. Specific objectives are:

+ Testing the system to develop flexible solar generation.

+ Study the deacceleration of a satellite, which will increase the resistance and its rapid descent from orbit.

+ Testing of satellite communication system including the Technical University of Warsaw, Gdynia Maritime Academy and the Centre for Astronomy them. Nicolaus Copernicus Academy of Sciences.

PW-Sat has five modes of operation:

1. Receive only mode - no downlink
2. Beacon CW mode - Downlink On-Off Keying (OOK) CW (1kHz) 12 WPM on 435.020 MHz
3. Beacon BPSK mode - Downlink BPSK (3 kHz) 1200 bps AX25 (1 frame on 20 sec) on 435.020 MHz
4. Control communication mode. Downlink BPSK (3 kHz) 1200 bps AX25 on 435.020 MHz
5. Voice Repeater mode (aka 'AO16' mode) - Uplink145.900MHz FM(15 kHz) Downlink 435.020MHz DSB (3 kHz)

For more information on PW-Sat in Google English see
http://tinyurl.com/CubeSatPW-Sat

IARU Amateur satellite frequency co-ordination panel pages
hosted by AMSAT-UK http://www.amsat.org.uk/iaru/

The AMSAT-UK article can be found on their web site at:
http://www.uk.amsat.org/2011/10/21/pw-sat-to-launch-in-january

[ANS thanks AMSAT-UK for the above information]

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SB SAT @ AMSAT $ANS-303.06
NASA ELaNa III Cubesat Launch Orbits Cubesats

AMSAT News Service Bulletin 303.06
>From AMSAT HQ SILVER SPRING, MD.
October 30, 2011
To All RADIO AMATEURS
BID: $ANS-303.06

NASA launched five small research satellites, or CubeSats, for four universities on October 28 from Vandenberg AFB. This will be the 3rd installment of the Educational Launch of Nanosatellite (ELaNa) missions. The CubeSats are manifested as auxiliary payloads on the Delta II launch vehicle for NASA's NPOESS Preparatory Project (NPP) mission.

The ELaNa III Cubesat Launch included RAX-2, MCubed, E1P,and AubieSat are all trackable by most OSCAR stations. As of press time signals from Aubiesat-1, E1P and RAX-2 had been received.

A video with live commentary describing the computer graphics of the NPP Second Stage Burn 3 and CubeSats Deployment:
http://www.youtube.com/watch?feature=player_embedded&v=FFLmERzduUY

The ElaNa CubeSat Media Briefing with Roland Coelho, WH7BE can be viewed at:
http://www.youtube.com/watch?v=UcjM2GhMD-E&feature=player_embedded

The initial keps:
http://gs.engin.umich.edu/predictions/tle_elana3.txt.

AubieSat-1 is designed to transmit with a power of about 800 milliwatts on a frequency of 437.475 MHz, plus or minus Doppler correction. The beacon signal, along with telemetry, will be sent using A1A continuous wave Morse code at 20 words per minute. Additional telemetry from the on board science experiment will use CW transmissions up to 60 WPM.

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AubieSat-1 Telemetry Format
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For all transmissions, arbitrary digits represent digits in base 10,
capital R denotes a decimal point, and FFFF is in hexadecimal.

Basic Beacon    20wpm   (for 20 sec total)
Every 1 min (Unless AS-1 is in outreach mode)

HI HI DE KI4NQO AUBIESAT 1 VB 3R68 SK (Beacon includes battery
voltage)

Outreach Beacon         20 wpm  (for 75 sec total)
Every 5 min  (Only when AS-1 is placed in outreach mode)

HI HI DE KI4NQO AUBIESAT 1BT  (Initialize transmission)
FFFF BT                       (Minutes since deployment)
01 VB 3R68 TB 39R2 BT         (Battery voltage and temperature)
02 P1 3R68 P2 3R68 BT         (Solar Panels 1 & 2 Max Power)
EOT DE KI4NQO 73 SK           (End of Transmission)

AubieSat-1 Pass Report Form
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Help the AubieSat-1 Team! Please fill out the following form and
email a copy to aubiesat1data@gmail.com

Name / Call sign of HAM operator reporting:
Time and date of pass (UTC):

Your Geographical Location:
(City, State, Country)

Your Latitude and Longitude:

Signal fading cycle time: (For one complete rotation in seconds)

Copy of Transmission Received:
(Please post a verbatim copy here of any transmission from AS-1
that you receive including these telemetry values if copied:)
+ Minutes Since Deployment
+ Battery Voltage (VB)
+ Battery Temperature (TB)
+ Solar Panel 1 Max Power (P1)
+ Solar Panel 2 Max Power (P2)

Notes/Observations:

Please direct any questions to: aubiesat1@gmail.com
Thank you for your assistance!

Frequency and Modulation Summary of the CubeSat Launch:
-------------------------------------------------------
Satellite: AubieSat-1
Downlink Freq: 437.475 MHz
EIRP:  .708W
Modulation Scheme: Interrupted Continuous Wave (IWC)
Protocol: Morse Code
Baud Rate: 20wpm
http://space.auburn.edu/

Satellite: RAX-2
Downlink Freq: 437.345 MHz
Modulation Scheme: GMSK
Baud Rate: 9600
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http://rax.engin.umich.edu/

Satellite: M-Cubed
Downlink Freq: 437.485MHz
EIRP: < 1W
Modulation Scheme: FSK
Protocol: AX.25
Baud Rate: 9600
http://umcubed.org/

Satellite: Explorer-1[PRIME] Flight Unit 2
Downlink Freq: 437.505 MHz
EIRP: -0.7dBW
Modulation Scheme: Non-Coherent FSK
Protocol: KISS Custom
Baud Rate: 1200
http://ssel.montana.edu/e1p/

DICE (non-amateur payload):
http://www.sdl.usu.edu/programs/dice
Explorer-1[PRIME]

[ANS thanks the AubieSat-1 Team at Auburn University for the above
 information]

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SB SAT @ AMSAT $ANS-303.07
Satellite Shorts From All Over

AMSAT News Service Bulletin 303.07
>From AMSAT HQ SILVER SPRING, MD.
October 30, 2011
To All RADIO AMATEURS
BID: $ANS-303.07

+ Congratulations to Steve Belter, N9IP on attaining his ARRL
  Satellite VHF/UHF Century Club (VUCC) certificate #223.

+ The ARISS store at http://www.cafepress.com/ariss has been
  updated with new products.

+ What did the three astronauts do on the ISS this past week? You
  can watch the video update from NASA on the research and activi-
  ties on the International Space Station for October 17-21, 2011,
  including updates on the upcoming Progress and Soyuz launches at:
  http://www.youtube.com/watch?feature=player_embedded&v=yAYqf5E6qIY

+ Watch the video of the October 21 debut lift off of a Russian
  Soyuz rocket from the edge of the Amazon jungle at the Guiana
  Space Center in French Guiana as it successfully carried the
  first two Galileo In-Orbit Validation satellites to space:
  http://www.youtube.com/watch?feature=player_embedded&v=c750fdZR6Mg

+ Roland Zurmely, PY4ZBZ, copied the full spectrum of signals from
  ARISSat with an SDR-IQ (and homemade VHF/HFconverter) and Spectra-
  Vue. The frequencies listed are the transmitted by satellite, and
  Doppler effectis clearly visible in the received signals, with
  higher frequencies at the beginning and lower at the end of the
  pass. The noise generated by linear transponder and the return of
  the transmission that I did in the UHF uplink are clearly visible.
  The CW-2 signal close to the 1kBPSK telemetry signalcan also be
  seen, as well as FM transmissions, switching between voice and

SSTV. Please see: http://www.qsl.net/py4zbz/arissat.htm#o

[ANS thanks everyone for the above information]

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SB SAT @ AMSAT $ANS-303.08
SatPC32 Version 12.8b Available

AMSAT News Service Bulletin 303.08
>From AMSAT HQ SILVER SPRING, MD.
October 30, 2011
To All RADIO AMATEURS
BID: $ANS-303.08

SatPC32 version 12.8b is available for download at
http://www.dk1tb.de/downloadeng.htm

The main SatPC32 program window now displays more information such as the date of the Keplerian elements file in use.

Before upgrading your SatPC32 installation, be sure to use the new program (in the ZIP file) to backup your user configuration. The upgrade erases all previous user configurations, but the new program will restore your configurations after upgrading.

The download is a demo version that requires users to enter their lat/lon each time the program is started. To make the program fully functional, enter your existing registration code or purchase a registration code from the AMSAT web site:
http://www.amsat-na.com/store/category.php?c=Software

DK1TB, the author of SatPC32 has donated the software to AMSAT. All sales of SatPC32 are used to support AMSAT.

Here are the changes described in the What's New file:

1. SatPC32, SatPC32ISS, Wisat32 and SuM now support rotor control of the
M2 RC-2800 rotor system.

2. The CAT control functions of SatPC32, SatPC32ISS and Wisat32 have been expanded. The programs now provide CAT control of the new Icom transceiver IC-9100.

3. The main windows of SatPC32 and SatPC32ISS have been slightly changed to make them clearer. With window size W3 the world map can be stretched (only SatPC32).

4. The accuracy of the rotor positions can now be adjusted for the particular rotor controller. SatPC32 therefore can output the rotor positions with 0, 1 or 2 decimals. Corrections of the antenna positions can automatically be saved. In previous versions that had to be done manually.

5. The tool 'DataBackup' has been added. The tool allows users to save the SatPC32 program data via mouse click and to restore them if necessary. After the program has been configured for the user's equipment the settings should be saved with 'DataBackup'. If problems occur later, the program can easily restore the working configuration.

6. The rotor interfaces IF-100, FODTrack, RifPC and KCT
require the kerneldriver IOPort.SYS to be installed. Since it
is a 32-bit driver it will not work on 64-bit Windows systems.
On such systems the driver can cause error messages.To prevent
such messages the driver can now optionally be deactivated.

7. SuM now outputs a DDE string with azimuth and elevation,
that can be evaluated by client programs. Some demo files show
how to program and configure the client.

[ANS thanks Wayne Estes W9AE for the above information]

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SB SAT @ AMSAT $ANS-303.09
ARISS Status - 24 October 2011

AMSAT News Service Bulletin 303.09
>From AMSAT HQ SILVER SPRING, MD.
October 30, 2011
To All RADIO AMATEURS
BID: $ANS-303.09

1. Upcoming School Contacts

Cherry Creek School District, Centennial, Colorado for an
Amateur Radio on the International Space Station (ARISS)
contact on Thursday, October 27 at 17:09 UTC via telebridge
station IK1SLD in Italy was successful. A radio technology
curriculum will be provided to students in the gifted and
talented program, "Inside Out" to get them interested in
amateur radio. The class will cover topics from radio
propagation to UTC time and space. A guest speaker will talk
about meteor scatter as well. Lesson plan objectives are to
understand: measuring systems, general awareness of time on
the body, orbits, science experiments, intervals, sleep, and
communications.

An Amateur Radio on the International Space Station (ARISS)
contact was scheduled for Space Laboratory, Herzliya Science
Centre, Herzliya, Israel on Friday, October 28 at 11:25 UTC.
The contact was successful and will be incorporated into
lessons covering the space environment, orbital mechanics,
satellite design and radio communications.

2. ARISS Contact with Seiryo Elementary

Seiryo Elementary School, Seto, Aichi, Japan experienced a
successful Amateur Radio on the International Space Station
(ARISS) contact on Tuesday, October 18.
The contact highlighted a science curriculum covering
electricity, space and technology.

3. ZST Students Contact ISS

On Friday, October 21, an Amateur Radio on the International
Space Station (ARISS) contact was held between students
attending Zespol Szkol Technicznych in Rybnicka, Slask, Poland
and on-orbit astronaut Mike Fossum, KF5AQG. Approximately 65
students, teachers, parents, guests and media attended the
event and listened as Fossum fielded 19 questions posed by the
students. The SP9PKS radio club members worked with the youth
to prepare them for the contact. Lesson plans included the

construction of radio equipment and contacts via LEO (Low Earth Orbit) satellites. Two newspapers and four broadcast radio stations covered the contact: Dziennik Zachodni and Wiadomoci Powiatowe newspapers, Radio Zet, Radio Zote Przeboje, Tok FM, Antyradio, and local station Radio Fest.

4. ARISS International Team Meeting, October 28-29

The ARISS International Face-to-Face Meeting will be held this Friday and Saturday, October 28 and 29 at the Space Center Houston in Houston, Texas. The team will come together to share regional reports as well as status reports from the program's other committees including education, operations and hardware.

5. ARISS International Team Teleconference Held

The monthly ARISS International teleconference was held on Tuesday, October 18. The upcoming face-to-face meeting was discussed, among other topics. Minutes have been posted: http://www.rac.ca/ariss/arisstel2011-10-18.htm

6. Astronaut Training Status

On October 18 Dan Burbank, KC5ZSX was given an ARISS refresher course to prepare him for his upcoming flight with Expedition 29 in November. Joe Acaba, KE5DAR participated in a preflight session the same day. He plans to fly with Expedition 31 in March 2012.

7. ARISS Recognized by NASA Associate Administrator for Education

In a recent communication of FY2011 accomplishments to the NASA education community, NASA Associate Administrator for Education Leland Melvin highlighted the accomplishments of ARISS:

"10,743 curious students and 778 motivated educators participated in direct communication with International Space Station (ISS) crews via the Amateur Radio on the International Space Station (ARISS), sparking their interest in STEM."

[ANS thanks Carol, KB3LKI, for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

73,
This week's ANS Editor,
Dee Interdonato, NB2F